

LISTING OF CLAIMS:

10/511334
DT04 Rec'd PCT/PTO 15 OCT 2004

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently amended) A method for the patterned coating of a substrate (1) having at least one surface ~~(2) which is to be coated~~, comprising the steps of:

producing at least one negatively patterned first coating ~~(3, 31, 32)~~ on the at least one surface ~~(2)~~; i

depositing at least one second layer ~~(7, 71, 72, 73)~~, ~~which comprises an evaporation-coating glass,~~ on the at least one surface (2) which that has been provided with the at least one negatively patterned first coating (3, 31, 32), said at least one second layer including an evaporation-coating glass; and

at least partially removing the at least one negatively patterned first coating (3, 31, 32).

2. (Currently amended) The method as claimed in claim 1, wherein the step of producing a the at least one negatively patterned first coating (3, 31, 32) on the ~~at least one surface (2)~~ comprises the step of uncovering a plurality of regions (6) of the at least one surface ~~(2) which is to be coated~~.

3. (Currently amended) The method as claimed in claim 1 ~~or 2~~, wherein the substrate ~~(1)~~ is part of a wafer assembly and the method is carried out while the substrate is still part of the wafer assembly.

4. (Currently amended) The method as claimed in ~~one of claims 1 to 3, in which~~ claim 1, wherein the step of depositing ~~a~~ the at least one second layer ~~(7, 71, 72, 73), which comprises an evaporation-coating glass,~~ comprises the step of deposition by evaporation coating.

5. (Currently amended) The method as claimed in claim 4, wherein the step of deposition ~~of a layer~~ by evaporation coating comprises the step of plasma ion-enhanced evaporation coating.

6. (Currently amended) The method as claimed in claim 4 ~~or 5~~, wherein the step of deposition by evaporation coating comprises the step of electron beam evaporation.

7. (Currently amended) The method as claimed in ~~one of claims 4 to 6~~ claim 4, wherein the step of deposition by evaporation coating ~~of a layer which comprises an evaporation-coating glass~~ comprises the step of evaporation of an evaporation-coating material, ~~which~~ to forms a material with a vitreous structure ~~which has been deposited on the~~ at least one surface ~~(2),~~ from a single source.

8. (Currently amended) The method as claimed in ~~one of claims 4 to 7~~ claim 4, wherein the step of deposition by evaporation coating ~~of a layer which comprises an evaporation-coating glass~~ comprises the step of co-evaporation from at least two sources.

9. (Currently amended) The method as claimed in ~~one of~~
~~claims 1 to 8~~ claim 1, wherein the step of depositing a the at
least one second layer ~~(7, 71, 72)~~ ~~which comprises an~~
~~evaporation-coating glass~~ comprises the step of depositing a
~~layer with~~ a composition which varies in a direction
perpendicular to the at least one surface.

10. (Currently amended) The method as claimed in ~~one of~~
~~claims 1 to 9~~ claim 1, wherein the step of depositing a the at
least one second layer ~~(7, 71, 72, 73)~~ ~~which comprises an~~
~~evaporation-coating glass~~ comprises the step of sputtering on a
~~layer (7, 71, 72, 73)~~.

11. (Currently amended) The method as claimed in ~~one of~~
~~claims 1 to 10~~ claim 1, wherein the step of depositing a the at
least one second layer ~~(7, 71, 72, 73)~~ ~~which comprises an~~
~~evaporation-coating glass~~ comprises the step of depositing a
~~layer (7, 71, 72, 73) by means of CVD~~ chemical vapor depositing.

12. (Currently amended) The method as claimed in ~~one of~~
~~claims 1 to 11~~ claim 1, wherein the step of depositing a the at
least one second layer ~~(7, 71, 72, 73)~~ ~~which comprises an~~
~~evaporation-coating glass~~ comprises the step of depositing a
~~layer (7, 71, 72, 73) which includes an at least binary~~
materials system.

13. (Currently amended) The method as claimed in ~~one of~~
~~claims 1 to 12~~ claim 1, wherein the step of depositing a the at
least one second layer ~~(7, 71, 72, 73)~~ ~~which comprises an~~
~~evaporation-coating glass~~ comprises the step of co-deposition of
organic material.

14. (Currently amended) The method as claimed in ~~one of~~
~~claims 1 to 13~~ claim 1, wherein the step of producing a the at
least one negatively patterned first coating ~~(3, 31, 32)~~
comprises the step of resist-coating, ~~in particular of~~
~~resist-coating by means of spin-coating and/or spraying and/or~~
~~the electrodeposition of a first coating (3, 31, 32).~~

15. (Currently amended) The method as claimed in ~~one of~~
~~claims 1 to 14~~ claim 1, wherein the step of producing a the at
least one negatively patterned first coating ~~(3, 31, 32)~~
comprises the step of embossing ~~a first coating (3, 31, 32).~~

16. (Currently amended) The method as claimed in ~~one of~~
~~claims 1 to 15~~ claim 1, wherein the step of producing a the at
least one negatively patterned first coating ~~(3, 31, 32)~~
comprises the step of applying a photoresist film.

17. (Currently amended) The method as claimed in ~~one of~~
~~claims 1 to 16~~ claim 1, wherein the step of producing a the at
least one negatively patterned first coating ~~(3, 31, 32)~~
comprises ~~the step of patterned printing on of a first coating~~
~~(3, 31, 32), in particular of patterned printing on by means of~~
screen printing.

18. (Currently amended) The method as claimed in ~~one of~~
~~claims 1 to 17~~ claim 1, wherein the step of producing a the at
least one negatively patterned first coating ~~(3, 31, 32)~~
comprises the step of lithographic patterning ~~of the first~~
~~coating (3, 31, 32) and/or the step of lithographic grey scale~~
patterning.

19. (Currently amended) The method as claimed in ~~one of~~
~~claims 1 to 18~~ claim 1, wherein the step of producing a the at
least one negatively patterned first coating ~~(3, 31, 32)~~ on the
~~at least one surface (2)~~ comprises the step of applying a
photopatternable layer ~~(3, 31, 32)~~.

20. (Currently amended) The method as claimed in claim 19,
wherein the step of applying a said photopatternable layer ~~(3,~~
~~31, 32)~~ comprises the step of applying a photoresist.

21. (Currently amended) The method as claimed in ~~one of~~
~~claims 1 to 20~~ claim 1, wherein the step of at least partially
removing the at least one negatively patterned first coating ~~(3,~~
~~31, 32)~~ comprises the step of dissolving at least one portion of
the at least one negatively patterned first coating ~~(3, 31, 32)~~
in a solvent.

22. (Currently amended) The method as claimed in ~~one of~~
~~claims 1 to 21~~ claim 1, wherein the step of at least partially
removing the at least one negatively patterned first coating ~~(3,~~
~~31, 32)~~ comprises the step of wet-chemical removal of at least
one portion of the at least one negatively patterned first
coating.

23. (Currently amended) The method as claimed in ~~one of~~
~~claims 1 to 22~~ claim 1, wherein the step of at least partially
removing the at least one negatively patterned first coating ~~(3,~~
~~31, 32)~~ comprises the step of dry-chemical removal of at least
one portion of the at least one negatively patterned first
coating ~~(3, 31, 32), in particular the step of burning the first~~
~~coating in an oxidizing plasma.~~

24. (Currently amended) The method as claimed in ~~one of claims 1 to 23~~ claim 1, wherein the step of at least partially removing the at least one negatively patterned first coating ~~(3, 31, 32)~~ comprises the step of lifting off a plurality of regions of the at least one second layer ~~(7, 71, 72, 73)~~.

25. (Currently amended) The method as claimed in ~~one of claims 1 to 24~~ claim 1, ~~which includes~~ further comprising the step of at least partially uncovering the at least one negatively patterned first coating ~~(3, 31, 32)~~.

26. (Currently amended) The method as claimed in claim 25, wherein the step of at least partially uncovering the at least one negatively patterned first coating ~~(3, 31, 32)~~ comprises the step of planarizing the ~~coated~~ at least one surface.

27. (Currently amended) The method as claimed in claim 25 ~~or 26~~, wherein the step of partially uncovering the at least one negatively patterned first coating ~~(3, 31, 32)~~ comprises the step of mechanical abrasion, ~~in particular by means of grinding and/or lapping and/or polishing.~~

28. (Currently amended) The method as claimed in ~~one of claims 1 to 27~~, ~~which includes~~ claim 1, ~~further comprising the step of aftertreatment of the positively patterned~~ exposing the at least one second layer, ~~in particular by means of~~ to an aftertreatment process selected from the group consisting of a wet-chemical process, a and/or dry-chemical process, a and/or thermal reflow process, a and/or doping process, and any combinations thereof.

29. (Currently amended) The method as claimed in ~~one of~~ ~~claims 1 to 28, wherein~~ claim 1, further comprising repeating the steps of producing a the at least one negatively patterned first coating ~~(3, 31, 32)~~ on the at least one surface ~~(2)~~ and of depositing the at least one second layer ~~(7, 71, 72, 73)~~ ~~which comprises an evaporation-coating glass~~ ~~are carried out repeatedly.~~

30. (Currently amended) The method as claimed in ~~one of~~ ~~claims 1 to 29, which includes~~ claim 1, further comprising the step of joining the at least one substrate ~~(1)~~ to a further substrate ~~(25)~~, ~~in particular~~ selected from the group consisting of a semiconductor component, and/or an optoelectronic component, and/or a micro-electromechanical component, and any combinations thereof.

31. (Currently amended) The method as claimed in ~~one of~~ ~~claims 1 to 30~~ claim 1, wherein the at least one second layer ~~method is used to~~ defines a component selected from the group consisting of at least one phase grating, ~~and/or~~ at least one optical component, ~~and/or~~ at least one channel, ~~(40)~~ ~~and/or~~ at least one waveguide, and any combinations thereof ~~(93, 94)~~ ~~in the second layer (7, 71, 72) which comprises an evaporation-coating glass.~~

32. (Currently amended) The method as claimed in ~~one of~~ ~~claims 1 to 31, which includes~~ claim 1, further comprising the step of at least partially filling structures of the at least one second layer ~~which comprises an evaporation-coating glass, in particular of filling them with a~~ conductive material and/or a transparent material ~~(29).~~

33. (Currently amended) The method as claimed in ~~one of~~
~~claims 1 to 32, which includes~~ claim 1, further comprising the
step of applying at least one conductive region, ~~in particular~~
~~an interconnect (19),~~ to the at least one surface of the
substrate and/or ~~of the~~ at least one second layer ~~(7, 71, 72,~~
~~73)~~.

34. (Currently amended) The method as claimed in claim 32
~~or 33~~, wherein the step of filling structures in the at least
one second layer ~~and/or the step of applying at least one~~
~~conductive region~~ comprises the step of producing at least one
passive electronic component, ~~in particular~~ selected from the
group consisting of a capacitor, and/or a resistor, and/or an
inductance, and any combinations thereof.

35. (Currently amended) The method as claimed in ~~one of~~
~~claims 1 to 34~~ claim 1, ~~wherein the substrate has at least two~~
~~surfaces (2, 4) which are to be coated and which in particular~~
~~lie on substantially opposite sides, in which~~ further comprising
the steps of:

producing the at least one negatively patterned first
coating ~~(3, 31, 32)~~ on ~~the~~ at least ~~one~~ two surfaces ~~(2)~~, of the
substrate;

~~of~~ depositing the at least one second layer ~~(7, 71, 72,~~
~~73)~~, ~~which comprises an evaporation coating glass,~~ on the at
least two surfaces; ~~(2) which has been provided with the first~~
~~coating (3, 31, 32), and~~

at least partially removing the at least one negatively
patterned first coating ~~(3, 31, 32)~~ ~~are carried out on~~ from each
of the at least two surfaces ~~(2, 4)~~.

36. (Currently amended) The method as claimed in ~~one of~~
~~claims 1 to 35, which includes~~ claim 1, further comprising the
step of applying a bonding layer to the at least one second
layer ~~(7, 71, 72, 73), in particular a~~ , wherein the bonding
layer ~~which~~ comprises a seed layer for a subsequent
metallization and/or an adhesive layer.

37. (Currently amended) The ~~[[A]] method for the patterned~~
~~coating of a substrate (1) having at least one surface (2) which~~
~~is to be coated, in particular one of the preceding claims as~~
claimed in claim 1, wherein the substrate (1) is coated with an
evaporation-coating glass the at least one second layer is
deposited through a mask.

38. (Currently amended) The method as claimed in claim 37,
~~wherein~~ further comprising bringing the mask ~~is brought~~ into
contact with ~~that~~ the at least one surface (2) of the substrate
~~(1) which is to be coated.~~

39. (Currently amended) The method as claimed in claim 37
~~or 38, wherein the mask is joined~~ further comprising joining the
mask to the at least one surface ~~which is to be coated.~~

40. (Currently amended) The method as claimed in ~~one of~~
~~claims 37 to 39, wherein the mask is~~ claim 37, further
comprising adhesively bonded bonding the mask to the substrate.

41 through 53. (Cancelled)

54. (New) A coated substrate comprising a first surface having at least one negatively patterned first coating disposed on said first surface and at least one patterned second layer disposed on said at least one negatively patterned first coating, wherein said at least one second layer comprises an evaporation-coating of glass.

55. (New) The coated substrate as claimed in claim 54, wherein said negatively patterned first coating is at least partially removed from said first surface.

56. (New) The coated substrate as claimed in claim 54, further comprising a component selected from the group consisting of an integrated electronic circuit arrangement, an optoelectronic circuit arrangement, a micro-electromechanical component, and any combinations thereof.

57. (New) The coated substrate as claimed in claim 54, wherein the substrate is joined to said component.

58. (New) The coated substrate as claimed in claim 54, wherein said at least one negatively patterned first coating and said at least one patterned second layer define at least one channel.

59. (New) The coated substrate as claimed in claim 54, wherein said at least one negatively patterned first coating and said at least one patterned second layer define at least one cavity.

60. (New) The coated substrate as claimed in claim 54, wherein said at least one negatively patterned first coating and said at least one patterned second layer define at least one cut-out.

61. (New) The coated substrate as claimed in claim 54, wherein said at least one negatively patterned first coating and said at least one patterned second layer define at least one interconnect.

62. (New) The coated substrate as claimed in claim 54, wherein said at least one negatively patterned first coating and said at least one patterned second layer define a passive electronic component selected from the group consisting of a capacitor, a resistor, an inductance, and any combinations thereof.

63. (New) The coated substrate as claimed in claim 54, wherein said at least one negatively patterned first coating and said at least one patterned second layer define at least one waveguide.

64. (New) The coated substrate as claimed in claim 63, wherein said at least one waveguide comprises at least two waveguides that are coupled to one another.

65. (New) The coated substrate as claimed in claim 54, wherein the substrate comprises a material selected from the group consisting of glass, metal, ceramic, plastic, silicon, gallium arsenide, and any combinations thereof.

66. (New) The coated substrate as claimed in claim 54, further comprising a second surface having said at least one negatively patterned first coating and said at least one patterned second layer disposed thereon.

67. (New) The coated substrate as claimed in claim 65, wherein said first and second surfaces are disposed on substantially opposite sides of the coated substrate.